The Rantop

Published by the Greater Cleveland Timex-Sinclair User Group

Late Winter 1996

Up Coming Events

In a move to improve our meetings we will be attempting to return to a more structured format with a presentation at each of the meetings. All members are expected to participate either in putting on a demonstration or securing an outside speaker or presenter if we are to survive as a club. Some of you may not have known that the Toronto group terminated itself last year and they had enough money in the bank to donate it to charity so lets try and keep the interest going!

The first of these will be at our March 1st, east side meeting at the Euclidean Room at 7:30. The presentation by Ron Hopkins-Lutz will be on the internet and the types of browsers and services available. He will also explain what HTML is and how to use it in creating a WEB page. While we won't be able to go online he will simulate typical on-line sessions. He will also have public domain and shareware software available. This should be a very good presentation so be sure to be there and tell your friends (if any) to come.

The following month in April the demonstration will be on Photo Retouching with Adobe Photoshop on a Power PC with 75 megs of RAM. It will be given at Mike Steinberg's Photographic Studio at 3723 W. 25th St. in Cleveland. The studio is located in an old Fire Station and the entrance is on the side door. Ring the bell for entrance. Since this involves a different location it also will be dependent upon the availability of his time. So the demonstration will be either the first Friday or third Friday in April. Call Greg Dupuy at 661-4105, the day before the meeting to confirm the location and program for that meeting. We need to plan for future meetings so your help is needed!

On February 25 Peter Trapp will have a computer show in Akron at the Tadmore Temple on Krebs Road off of the Arlington Rd Exit on 77. Also on Feb 25 the CFARC Hamfest will be at the Emidio Party Center at State Road and Bath Road $5 at the door. On March 3 there will be a Hamfest at the Berea fairgrounds. On March 17 the Toledo Mobile Radio Association will have a Hamfest in Maumee Ohio. Contact Robert Hanna, 172154 Circular Dr., Toledo 43614 or call 419-382-2529.

That Was Then This is Now

What follows appeared on the Sinclair News Group recently. *Very Briefly... An article in one of the English papers this week mentioned that Sir Clive is planning another electric car, possibly being made by Reliant... (the three wheel experts).. Gosh!!! We can't wait!!*

Mini News from the UK

According to Alec Carswell there is now a Hard Drive for the Sam Coupe, now known as the Elite. It is a machine which is rather like the dream Spectrum described on the following page. Perhaps someone could come up with an IDE interface for the 2068 but it may be too late.

Super Spectrum - the never-released Loki

*It should be noted that all of the below was vapourware - the journalists were writing up what **they** thought it would look like if Sinclair's plans ever actually came to fruition... The Loki was never actually released, of course, though Amstrad made use of some of the keyboard designs; the Spectrum +2 was a slightly modified Spectrum 128 in what was effectively a Loki box.*

At the time of the Amstrad deal Sinclair was well advanced with development plans for a new Spectrum micro - the SuperSpectrum. Designed to replace the Spectrum 128 at under £200, the SuperSpectrum - code named 'Loki' after the Norse 'gamesplayer' god - was an entertainment software computer with graphics and sound the likes of which have never been seen even at five times the price.

Inspiration for the SuperSpectrum undoubtedly comes from Commodore's incredible Amiga machine. The key to the startling power of the SuperSpectrum - as with the Amiga - lies in its special custom chips. The SuperSpectrum has two sophisticated chips handling the video screen (Rasterop device) and sound synthesis, both with direct memory access. This gives the machine the potential to produce incredibly fast 3D graphics manipulations and sound of hi-fi quality. But where the Amiga costs over £1,500, the SuperSpectrum would scrape in under £200. The trick was that the SuperSpectrum would be still an 8-bit machine. In fact, it would even has a Spectrum 48K compatible mode if you want it. The processor it would have used was a special up-rated version of the old Spectrum's Z80A. Called the Z80H, the new chip runs twice as fast, at an incredible 7 MHz. At this speed there is time to provide a fast interrupt handler that keeps pace with the video display, still leaving time to run programs faster than the Spectrum 48K.

But the real power of the micro came from the two custom chips. Because they have direct access to the memory, during time which would otherwise be wasted, large amounts of screen data can be moved about at speeds that the CPU couldn't manage, even if it had nothing else to do.

To match the CPU, fast-access Ram was required, and the SuperSpectrum would be equipped with two 64K banks each made up of two 256K-bit chips. One bank would be connected to both the CPU and custom-built Rasterop video hardware and would normally hold the video information and sound waveform tables. Bank switching is required to enable the 16-bit address bus access to all the Ram. A 4-bit system allows a total address space of 1 Mbyte. At least two banks would be occupied by Roms but the rest can be fitted with Ram expansion.

The display quality would rely upon using a 53K video Ram table. Even at 7Mhz a Z80 could not manipulate this amount of data quickly enough to give reasonable animation, so the custom-designed graphics Rasterop device was essential. It could tranfer 8-bit data in the video area from one address to another, and in the process can carry out logical functions using data from the destination and source addresses as well as its own masking registers. Animation and selective screen scrolling would become an automatic process with the CPU only sending a few instructions during each line interrupt.

Another idea taken from the Amiga was the line drawing hardware (we call them vector graphics now) - the SuperSpectrum would have been capable of remarkable 3D wire-frame graphics. The screen mode that would have produced the best games has a 256 by 212 pixel resolution and 64 colours. A single byte was used for each pixel, leaving two bits spare for the Rasterop chip to use for bobs (blitter objects) that would give sprite-like animation and collision detection for multi-coloured graphic shapes.

The same principle of Ram sharing would allow sound synthesis of a high quality as waveforms are stored in memory. Sound output, produced by an 8-bit digital to analogue converter, can be heard through a TV speaker, stereo headphones or fed Into a hi-fi system. An optional sound sampler would allow you to 'record' any sound that has a pitch and use it as a musical voice. A music keyboard for the SuperSpectrum would be available as an add-on.

While it's easy to be blinded by the SuperSpectrum's

startling graphics and sound qualities there are two other features which could be just as important to the machine's success. Although the SuperSpectrum would still support cassettes - and Amstrad may well build a cassette player into the main box - Softcards could become the new medium for program storage. These credit card size Rom cards could hold a program up to 1 Mbyte in size and would be cheap to manufacture.

The other feature which should have attracted Amstrad to the SuperSpectrum was the built-in CP/M operating system (current in 86 in the UK) - add a controller and disc drive and the SuperSpectrum fitted neatly into the Amstrad range, running the same utilities as the Amstrad CPC and PCW computers.

To give an idea of what could have been achieved with the SuperSpectrum take a look at what the Amiga can do. Nearly everyone who had seen an Amiga (in 1986) had had to completely rethink their expectations of other machines. It could perform lightning fast solid 3D tumbling, animation approaching true cartoon quality and produce digitally sampled sound - real voices, real jet engine roar.

The SuperSpectrum wouldn't equal the Amiga for speed but it would come pretty close, and be able to produce very similar effects at a fraction of the cost. The big question was: Would Amstrad market the SuperSpectrum now they have the rights to it? And the answer as we know now was no!

Keyboard

One feature that would mark out the SuperSpectrum as different from every Sinclair micro before, would be a keyboard suitable for the fastest of typists. With word-processing such a major attraction to people who would not consider buying a computer for games, a good keyboard is essential. Another change would be the lack of keyword legends associated with 48K Spectrum Basic. The Basic was a development of the QL's SuperBasic and an additional method of entering information would be via a light pen, supplied as standard. would not consider buying a computer for games, a good keyboard is essential. Another change would be the lack of keyword legends associated with 48K Spectrum Basic. The Basic was a development of the QL's SuperBasic and an additional method of entering information would be via a light pen, supplied as standard.

Memory

In standard form there would be 128K of Ram. With half of it taken up by video and sound bitmaps this may not seem too generous, but bank switching was provided to allow expansion. It was intended that most software would be stored in Rom - up to 1Mbyte on special Softcards - leaving plenty of free Ram for workspace. SuperBasic, text, animation graphics, sound and music editors as well as CP/M wlll be built-in, and the SuperSpectrum Softcard Rom slot would also be standard, glvlng instant program loading for users and piracy protection for software houses.

Z80H microprocessor

Sinclair computers before and after the QL have used the Zilog Z8OA CPU, triggered by clock pulses to run at 3.5 MHz. The Z80H allows the SuperSpectrum to run at 7MHz so that all processing functions run in half the time, whether they are number crunching, data handling or screen printing. The additional speed not

only means faster programs - a powerful interrupt facility would keep pace with the screen display without slowing down the CPU to any appreciable extent. Game programmers wlll delight in its speed.

Sound generation capabilities.

Rather than rely on a standard sound chip, the SuperSpectrum would have custom-built synthesiser hardware, so it won't sound like any other computer, Amiga excepted. What it would sound like is a Fairlight synth - in other words, virtually anything you want. Waveforms are held in Ram and read out at various speeds with filterlng and envelope control. There would also be a Midi interface, stereo inputs and outputs (Walkman style) and built-in music composing.

Input and output

The list of connections to the new machine was very impressive. A fully buffered Z80 expansion bus, RGB, composite and TV video, floppy disc, serial printer, twin joystick, light pen, network and cassette ports would have kept most people happy. Specialists would welcome the Midi In, Out and Thru and stereo sound input, output and Walkman-style headphone jacks. Also the genlock input which would lock the SuperSpectrum's video hardware to video recorders, Laservision optical disc players and a frame grabber. The light pen was to be fitted as standard. Peripherals options include floppy disc drive, music keyboard and Ram expansions. Hard disc, compact disc optical Rom drive, mouse, modem and audio and video grabbers are also supported.

Spectrum compatible

The machine would be Spectrum 48K compatible. Inside the SuperSpectrum would be faithful copies of the old Roms. The video hardware can switch to the old format and the CPU clock would slow down to 3.5Mhz. With the same cassette interface available, it seemed likely then that a high proportion of Spectrum software would run in a special compatible mode whlch could be selected. You would not be able to write Spectrum Basic programs as the old Basic Rom wlll be hidden from the user (do you want to write half-speed programs?) though programs whlch use it would be able to access it when loaded. Whatconcerned some people was the lack of a Microdrive interface. Microdrives it would seem are well out of favour. Also there are no plans to include the sound chip from the 128, so true 128 compatibility seems unlikely.

Video display

If you think that some remarkable effects have been achieved on the Spectrum screen, you've seen nothing yet - the SuperSpectrum can rival the state-of-the-art graphics handling of the Amiga. With nearly six times more memory devoted to video Ram, the display has the same horizontal resolution as a QL (512 plxels) - but 16 colours are available! Cut the number of pixels per line to 256 and you have two options: 256 colours, or 64 colours and four sprite planes. To handle this vast potential, custom graphics, blitter technology in the form of custom graphics handling, sprite and collision detection hardware, the Rasterop chlp (similar to the Amiga's blitter chip) would be built in. This can access the screen Ram directly, so graphic operations can be performed very quickly. Rasterop would also contain a light-pen interface.

The above article was originally printed in the magazine, Sinclair User, the June 1986 issue and was downloaded from the WWW and edited for the Ramtop.

Ramtop

Ramtop is the publication of the Greater Cleveland Timex Sinclair User Group and is published quarterly. Contributions are welcome and other User Groups are free to reprint information presented here with proper attribution.

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